



Department of the Navy



Corrosion Prevention & Control



Current U.S. Navy Corrosion Concerns

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Briefing Objective

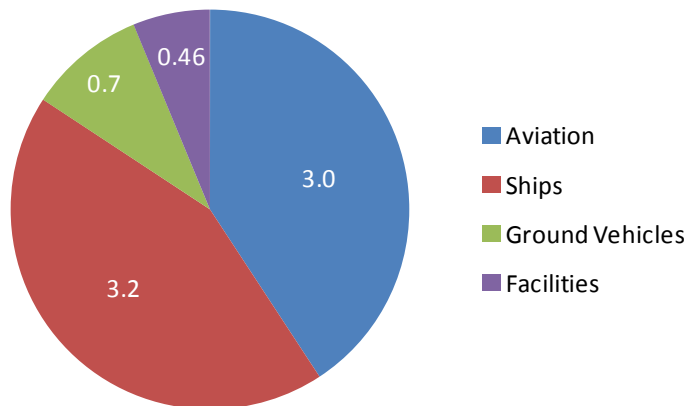
- **To provide an overview of U.S. Navy corrosion concerns:**
 - **Cost of Corrosion to U.S. Navy**
 - **Congressional Mandate on Corrosion**
 - **CPC Organizational Structure**
 - **Top 10 Corrosion Concerns**
 - **Future Focus Areas for Corrosion**



Cost of Corrosion to U.S. Navy

Total Annual Cost: \$7.36B

Cost of Corrosion, \$B



Study year	Study segment	Annual cost of corrosion	Data baseline
2005–2006	Army ground vehicles	\$2.0 billion	FY2004
	Navy ships	\$2.4 billion	FY2004
2006–2007	DoD facilities and infrastructure	\$1.8 billion	FY2005
	Army aviation and missiles	\$1.6 billion	FY2005
	Marine Corps ground vehicles	\$0.6 billion ^a	FY2005
2007–2008	Navy and Marine Corps aviation	\$3.0 billion	FY2005 and FY2006
	Coast Guard aviation and vessels	\$0.3 billion	FY2005 and FY2006
2008–2009	Air Force aviation and missiles	\$5.4 billion	FY2006 and FY2007
	Army ground vehicles	\$2.4 billion	FY2006 and FY2007
	Navy ships	\$3.2 billion	FY2006 and FY2007
	DoD–Other equipment	\$5.1 billion	FY2006
2009–2010	DoD facilities and infrastructure	\$1.9 billion	FY2007 and FY2008
	Army aviation and missiles	\$1.4 billion	FY2007 and FY2008
	Marine Corps ground vehicles	\$0.5 billion	FY2007 and FY2008
2010–2011	Navy and Marine Corps aviation		
	Air Force aviation and missiles		

Annual Cost of Corrosion for Department of Defense: \$20 billion (2001)



Congressional Mandate on Corrosion

- **“Prevention and Mitigation of Corrosion of Military Equipment and Infrastructure” – Public Law 107-314, Enacted in 2003**
 - Established senior DoD position for oversight of corrosion prevention and control

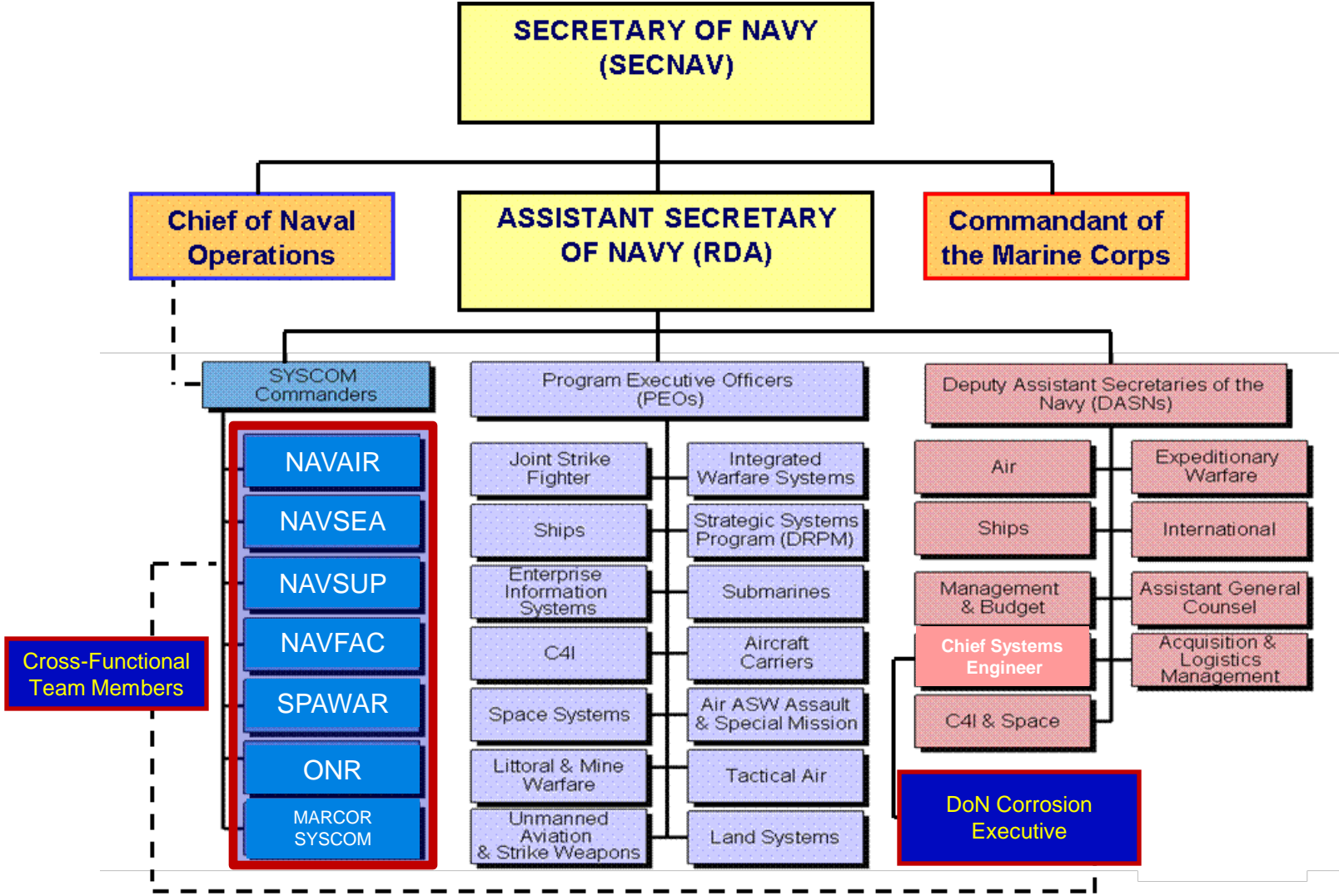
- **“Office of Corrosion Policy and Oversight” – Public Law 110-181, Enacted in 2008**
 - Established Office of Corrosion Policy and Oversight and assigned Director responsibilities

- **“Corrosion Control and Prevention Executives for the Military Departments” – Public Law 110-417, Enacted in 2008**
 - Established senior level corrosion official within each Military Department and assigned specific responsibilities

- **Congressional Accountability and Reporting Requirements**
 - Government Accountability Office tasked to review DoD and Military Department corrosion programs
 - Military Department corrosion executives required to submit annual report to Secretary of Defense
 - Combined report submitted to Congress each year with budget requests



DoN CPC Organizational Structure





Top 10 Corrosion Concerns

- **Constrained Acquisition and Sustainment Budgets**
 - Trade-offs aimed at cost reduction increase level of operational risk
 - Foster CPC-centric design environment that considers life cycle corrosion costs
- **Reduction in Total Ownership Costs**
 - 65-80% of life cycle cost is incurred during Operations & Support
 - \$1 in design = \$2 in build = \$8 in pier-side
 - Significant percentage of maintenance funds dedicated to corrosion-specific repairs
- **Concurrent Design, Build Methodology**
 - Aggressive design schedules limit incorporation of corrosion prevention technologies
 - RDT&E discoveries related to corrosion must be included in criteria and standards
- **Achieving Design Service Life**
 - Corrosion significantly impacts asset degradation, safety, and mission availability
 - Vital to ensure correct application of materials and coatings to minimize corrosive damage
- **Increase in System & Platform Complexity**
 - Increased use of cathodic materials presents new challenges for designers
 - Essential to ensure corrosion impacts of these decisions are considered early



Top 10 Corrosion Concerns

- **Corrosion Training for Sailors and Maintainers**
 - Preventative maintenance becomes first line of defense for operational platforms
 - Necessary to train on proper use of anti-corrosion tools and procedures
- **Corrosion Considerations in Contract Language**
 - Specifying corrosion as a design requirement is the best preventative action
 - Contract language provides quality control, quality assurance, and oversight capabilities
- **Time-Sensitive and Cost-Effective Technology Transition**
 - RDT&E activities produce several technologies that are shelved due to implementation costs
 - Increase awareness of technology needs and incorporate existing solutions
- **Increase in Operational Tempo**
 - Reduction in number of maintenance availabilities for in-service platforms
 - Vigilance and proactivity through proper training can prevent unnecessary degradation
- **Paralysis by Analysis**
 - Existing survey requirements reduce funds available for preventative and corrective repairs
 - Create balance between extensive inspections and periodic preventative maintenance



Future Focus Areas for Corrosion

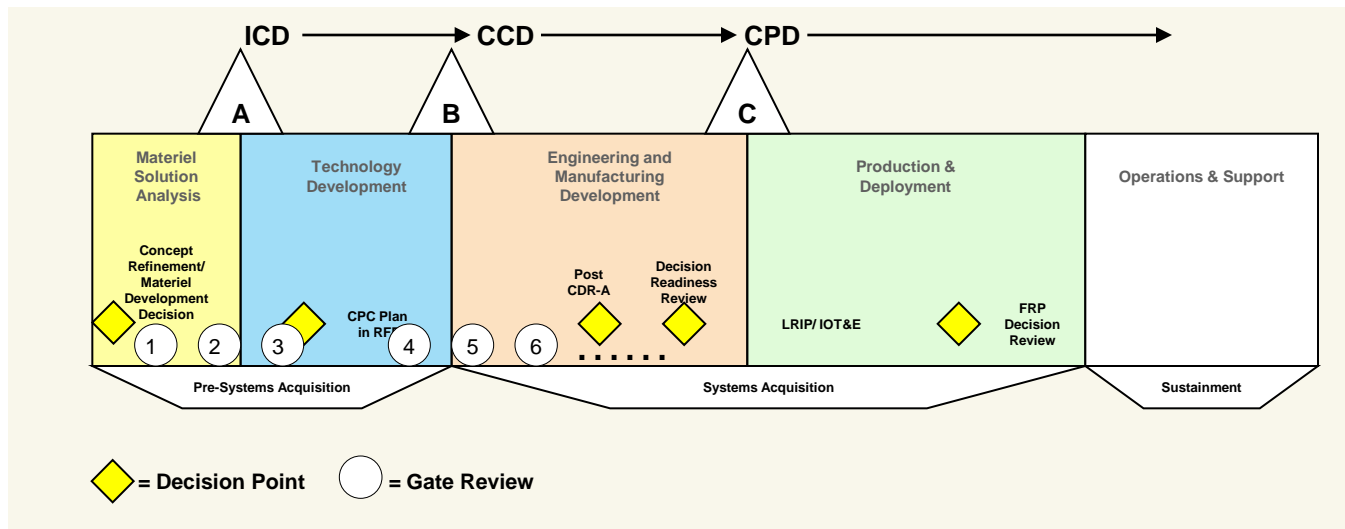
- **Development of a Navy policy document to outline processes and procedures for corrosion prevention and control activities**
- **Develop and include corrosion requirements in contract language**
- **Increase visibility of corrosion during Navy acquisition program reviews and milestones**
- **Continuous improvement of assessment methodologies for corrosion plans and trade studies**
 - Better corrosion modeling and prototyping
 - Develop specific, measurable, attainable corrosion metrics
- **Continuous improvement of CPC Planning Guidebook**
- **Emerging Risks (Extended Service Life, Technology, Environmental, etc.)**

“Being proactive creates the desired result.”



Questions?

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“Develop a Plan. Follow the Process. Utilize the Right People.”